IN THE INTERNATIONAL BUREAU OF WIPO

In The Matter of PCT International Patent Application:

Applicant	:	**Ceapro Inc. et al**
Owner	:	**Ceapro Inc. et al**
PCT Appln. No.	:	**PCT/CA2004/000661**
PCT Filing Date	:	**April 30, 2004**
Title	:	**Oral Cereal Beta Glucan Compositions**
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European Patent Office
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D-80331 Munich
GERMANY
Attention: Pacreu Largo, M

RESPONSE TO WRITTEN OPINION
AMENDMENT UNDER ARTICLE 34 OF THE PCT

Dear Sirs:

This letter is in response to the Written Opinion dated September 27, 2004.

IN THE CLAIMS:

Please replace claim pages 29-34 containing claims 1-30 with new claim pages 29-34 containing new claims 1-30, enclosed herewith.

REMARKS

The claims have been replaced with a new set of claims, which are based on the claims as originally filed, and which more particularly define the invention of the present application.

New claim 1 is based on former claims 9 and 10 and page 16, line 27 of the description.

New claim 2 is based on former claim 10.

New claim 3 is based on former claim 6 and page 18, lines 1-7 of the description.

New claims 4-6 are based on page 11, lines 24-28 and page, lines 18-21 of the description.

New claim 7 is based on former claim 7 and page 18, lines 9-16 of the description.

New claim 8 is based on former claim 8 and page 18, lines 18-26 of the description.

New claim 9 is based on former claim 19.

New claim 10 is based on former claim 5, page 11, lines 24-28 and page 17, lines 5-12 of the description.

New claim 11 is based on former claims 1 and 2.

New claim 12 is based on former claim 19.

New claim 13 is based on former claim 11 and page 19, lines 14-17 of the description.

New claim 14 is based on former claim 12.

New claim 15 is based on former claim 17 and page 19, lines 19-23 of the description.

New claim 16 is based on former claim 18 and page 19, lines 25-30.

New claim 17 is based on former claim 13, page 11, lines 24-28 and page 17, lines 22-25 of the description.

New claim 18 is based on former claim 14.

New claim 19 is based on page 9, lines 12-13 of the description.

New claim 20 is based on former claim 25, page 11, lines 24-28 and page 17, lines 26-33 of the description.

New claim 21 is based on former claim 26.

New claim 22 is based on former claim 27 and page 11, lines 24-28 of the description.

New claim 23 is based on former claim 28.

New claim 24 is based on former claims 27 and 28.

New claim 25 is based on former claims 27 and 28.

New claim 26 is based on former claim 29.

New claim 27 is based on former claim 30.

New claims 28-29 are based on former claim 27 and page 11, lines 24-28.

The Examiner has rejected former claims 1-5, 9-10, 15-16, 19-20 and 22-26 under Article 33(2) PCT, as allegedly lacking novelty in view of D1 or D2. The Examiner has also rejected former claims 1-30 as allegedly lacking inventiveness in view of D6-D9. Applicant has addressed the Examiner's rejections based on the foregoing amendments and the comments set forth below.

D1 discloses an oral composition comprising oat beta glucan, extract of Prickly ash as an antibacterial agent, extract of Slippery Elm as a plant extract, lemon oil as a flavouring agent, Polysorbate 20 and Polysorbate 80 as surfactants, glycerin as a humectant, and aqueous glucose as a carrier.

D2 discloses an oral composition comprising oat beta glucan, lactoferrin as an anti-microbial agent, lemon flavoring, sorbitol and SiO_2.

Neither D1 nor D2, however, teach or suggest a composition *for use* as a toothpaste, comprising an effective amount of a β (1-3) β (1-4) glucan, an effective amount of a flavouring agent, an effective amount of a surfactant, and an effective amount of a polishing agent, as recited in new claims 1-9.

Claims 3, 7 and 8 correspond to original claims 6 to 8, which were indicated as being novel in the Written Opinion dated September 27, 2004.

Furthermore, D1 and D2 do not teach or suggest a mouthrinse comprising an effective amount of a β (1-3) β (1-4) glucan, which is "for imparting fresh breath to a subject over a prolonged period of time", as recited in new claims 10-12 and 17-21. In particular, it is respectfully pointed out that the recited purpose of "imparting fresh breath to a subject over a prolonged period of time" represents a functional technical feature of new claims 10-12 and 17-21, which is neither taught nor suggested in the cited art, which relate to anti-snoring compositions (D1) or pharmaceutical compositions (D2).

New claims 13-16 relate to a tooth-whitening composition comprising an effective amount of a β (1-3) β (1-4) glucan and an effective amount of a bleaching agent, and new claims 26-27 relate to a method of whitening the teeth of a subject using such a composition. New claims 13-16 and 26-27 are based on former claims 11-12 and 29-30, respectively, which were indicated as being novel in the Written Opinion dated September 27, 2004.

New claims 22-25 relate to a method and new claim 28 to a use "for imparting fresh breath to a subject over a prolonged period of time", which comprises applying to one or both of the oral cavity and teeth of a subject a composition comprising an effective amount of a β (1-3) β (1-4) glucan and an effective amount of one, or more than one of an antibacterial agent, a botanical extract, and a flavouring agent. New claim 29 relates to a use of a composition comprising an effective amount of a β (1-3) β (1-4) glucan and an effective amount of a flavoring agent "for continuously providing the flavouring agent within the oral cavity of a subject". Finally, new claim 30 recites a use of a composition comprising an effective amount of a β (1-3) β (1-4) glucan and an effective amount of an antibacterial agent "for continuously providing the antibacterial agent within the oral cavity of a subject". It is respectfully submitted that the recited purpose of "imparting fresh breath to a subject over a prolonged period of time" recited in new claims 22-25 and 28, and the recited purpose of continuously providing a flavouring agent or antibacterial agent within the oral cavity of a subject, as recited in new claims 29 and 30, respectively, represent functional technical features of these claims that are neither taught nor suggested by the cited art.

The problem addressed by the present invention is how to provide an oral composition that can impart fresh breath to a subject over a prolonged period of time. The present application solves this problem by providing oral compositions in the form of a toothpaste or a mouthrinse, which comprise an effective amount of β (1-3) β (1-4) glucan, and an effective amount of one or both of a flavouring agent and an antibacterial agent. As indicated at page 11, lines 24-32 and page 21, lines 18-21 of the present description, the stickiness property of the β (1-3) β (1-4) glucan allows the compositions of the present invention to be retained on the surface of the oral cavity, the teeth or the gums of a subject, and impart fresh breath to the subject over a prolonged period of time by continuously providing the flavouring agent, or the antibacterial agent, or both, within the oral cavity of the subject.

Another problem addressed by the present invention is how to provide a tooth-whitening composition that can be retained on the surface of the teeth of the subject over a prolonged period of time. The present application solves this problem by providing oral compositions comprising an effective amount of β (1-3) β (1-4) glucan and an effective amount of a bleaching agent. As indicated at page 12, lines 1-4 and page 21, lines 18-21 of the present description, the stickiness property of the β (1-3) β (1-4) glucan allows the tooth-whitening compositions of the present invention to be retained on the surface of the teeth of a subject over a prolonged period of time. As a result, the tooth-whitening compositions of the present application may be more clinically effective in whitening the teeth of a subject than prior art compositions.

The cited prior art does not address the same problems as the present application. Rather, D1 relates to a composition for use in the treatment of snoring and D2 relates to compositions for enhancing the activity of macrophages and neutrophils. As indicated above, D1 and D2 do not relate to compositions for use as a toothpaste or in tooth-whitening, nor do they relate to a composition for use as a mouthrinse for imparting fresh breath to a subject over a prolonged period of time.

Furthermore, the toothpaste, mouthrinse and tooth-whitening compositions of the present application differ from conventional toothpaste, mouthrinse and tooth-whitening compositions (for example in D6 to D9) in that they comprise a β (1-3) β (1-4) glucan as a component having a stickiness property that allows the compositions of the present invention to be retained on the surface of the oral cavity, the teeth or the gums of a subject of a subject over a prolonged period of time. As a result, the toothpaste and mouthrinse compositions of the present invention are advantageous over conventional toothpastes and mouthwashes in that they can continuously provide a flavouring agent, or antibacterial agent, or both, within the oral cavity of the subject. Furthermore, the tooth-whitening compositions of the present invention can be retained on the surface of the teeth of a subject over a relatively longer period of time than conventional tooth-whitening compositions that do not include a β (1-3) β (1-4) glucan component, and can, therefore, be more clinically effective in whitening the teeth of the subject. Therefore, the claims do involve an inventive step over the prior art.

Based on the foregoing comments, Applicant respectfully submits that the newly presented claims are novel and inventive in view of the cited art.

Respectfully submitted,

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THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A toothpaste comprising:

an effective amount of a β (1-3) β (1-4) glucan;

an effective amount of a flavouring agent;

an effective amount of a surfactant, and

an effective amount of a polishing agent.

2. The toothpaste according to claim 1, further comprising an effective amount of one, or more than one compound selected from the group consisting of a sweetener, an antibacterial agent, a botanical extract, a humectant, a thickener, a fluoride salt, an odour neutralizing agent, an antioxidant, and a bleaching agent.

3. The toothpaste according to claim 2, wherein the oral composition comprises:

an effective amount of a β (1-3) β (1-4) glucan;

an effective amount of an antibacterial agent;

an effective amount of a flavouring agent,

an effective amount of a surfactant, and

an effective amount of a polishing agent.

4. The toothpaste according to claim 1, wherein the toothpaste is for imparting fresh breath to a subject over a prolonged period of time.

5. The toothpaste according to claim 1, wherein the toothpaste is for continuously providing the flavouring agent within the oral cavity of a subject.

6. The toothpaste according to claim 3, wherein the toothpaste is for continuously providing the flavouring agent and the antibacterial agent within the oral cavity of a subject.

7. The toothpaste according to claim 2, wherein the oral composition comprises:

an effective amount of a β (1-3) β (1-4) glucan;

an effective amount of an antibacterial agent;

an effective amount of a flavouring agent;
an effective amount of a surfactant;
an effective amount of a polishing agent, and
an effective amount of a fluoride salt.

8. The toothpaste according to claim 2, wherein the oral composition comprises:
an effective amount of a β (1-3) β (1-4) glucan;
an effective amount of an antibacterial agent;
an effective amount of a flavouring agent;
an effective amount of a surfactant;
an effective amount of a sweetener;
an effective amount of a polishing agent, and
an effective amount of a fluoride salt.

9. The toothpaste according to claim 3, wherein the antibacterial agent is selected from the group consisting of triclosan, cetyl pyridinium chloride, sanguinarine, domiphen bromide, a quaternary ammonium salt, a zinc compound, a fluoride, alexidine, octonideine, EDTA, silver nitrate, thymol, methyl salicylate, eucalyptol, menthol, and a mixture thereof.

10. A mouthrinse for imparting fresh breath to a subject over a prolonged period of time, comprising:
an effective amount of a β (1-3) β (1-4) glucan;
an effective amount of an antibacterial agent;
an effective amount of a flavouring agent;
an effective amount of a surfactant, and
an effective amount of a sweetener.

11. The mouthrinse according to claim 10, further comprising one, or more than one compound selected from the group consisting of an odour neutralizing agent, an antioxidant and a humectant.

12. The mouthrinse according to composition of claim 10, wherein the antibacterial agent is selected from the group consisting of triclosan, cetyl pyridinium

chloride, sanguinarine, domiphen bromide, a quaternary ammonium salt, a zinc compound, a fluoride, alexidine, octonideine, EDTA, silver nitrate, thymol, methyl salicylate, eucalyptol, menthol, and a mixture thereof.

13. A tooth-whitening composition comprising:

an effective amount of a β (1-3) β (1-4) glucan, and

an effective amount of a bleaching agent.

14. The tooth-whitening composition according to claim 13, further comprising an effective amount of one, or more than one compound selected from the group consisting of a flavouring agent, an antibacterial agent, a botanical extract, a surfactant, a humectant, a thickener, a fluoride salt, an odour neutralizing agent, an antioxidant, and a polishing agent.

15. The tooth-whitening composition according to claim 14, comprising:

an effective amount of a β (1-3) β (1-4) glucan;

an effective amount of a flavouring agent, and

an effective amount of a bleaching agent.

16. The tooth-whitening composition according to claim 14, comprising:

an effective amount of a β (1-3) β (1-4) glucan;

an effective amount of a flavouring agent;

an effective amount of an antibacterial agent, and

an effective amount of a bleaching agent.

17. A mouthrinse for imparting fresh breath to a subject over a prolonged period of time, comprising:

an effective amount of a β (1-3) β (1-4) glucan, and

an effective amount of an odour neutralizing agent.

18. The mouthrinse according to claim 17, further comprising an effective amount of one, or more than one compound selected from the group consisting of a flavouring agent, an antibacterial agent, a botanical extract, a surfactant, a humectant, a thickener, a fluoride salt, a bleaching agent, an antioxidant, and a polishing agent.

19. The mouthrinse according to claim 17, wherein said odour neutralizing agent is selected from the group consisting of zinc gluconate, zinc citrate, alpha ionone, and a mixture thereof.

20. A mouthrinse for imparting fresh breath to a subject over a prolonged period of time, comprising:

an effective amount of a β (1-3) β (1-4) glucan;

an effective amount of an antibacterial agent selected from the group consisting of triclosan, cetyl pyridinium chloride, sanguinarine, domiphen bromide, a quaternary ammonium salt, a zinc compound, a fluoride, alexidine, octonideine, EDTA, silver nitrate, thymol, methyl salicylate, eucalyptol, menthol, and a mixture thereof.

21. The mouthrinse according to claim 20, further comprising an effective amount of one, or more than one compound selected from the group consisting of a flavouring agent, a polishing agent, a surfactant, a botanical extract, a humectant, a thickener, a fluoride salt, a bleaching agent, a gum base, an antioxidant, and an emulsifier.

22. A method for imparting fresh breath to a subject over a prolonged period of time, comprising applying to the teeth, the oral cavity, or both of a subject, a composition comprising:

an effective amount of a β (1-3) β (1-4) glucan, and

an effective amount of one, or more than one of an antibacterial agent, a botanical extract, and a flavoring agent.

23. The method according to claim 22, wherein the composition further comprises an effective amount of one, or more than one compound selected from the group consisting of a surfactant, a sweetener, a polishing agent, a thickener, a fluoride salt, a bleaching agent, a humectant, an odour neutralizing agent, an antioxidant, and a gum base..

24. The method according to claim 23, wherein the composition comprises:

an effective amount of a β (1-3) β (1-4) glucan;

an effective amount of a flavouring agent;

an effective amount of a surfactant, and

an effective amount of a polishing agent.

25. The method according to claim 23, wherein the composition comprises:

an effective amount of a β (1-3) β (1-4) glucan;

an effective amount of an antibacterial agent;

an effective amount of a flavouring agent;

an effective amount of a surfactant, and

an effective amount of a sweetener.

26. A method of whitening the teeth of a subject, comprising applying to the teeth of the subject an oral composition comprising:

an effective amount of a β (1-3) β (1-4) glucan, and

an effective amount of a bleaching agent.

27. The method according to claim 26, wherein the oral composition further comprises an effective amount of one, or more than one compound selected from the group consisting of a flavouring agent, an antibacterial agent, a botanical extract, a surfactant, a humectant, a thickener, a fluoride salt, an antioxidant, and a polishing agent.

28. A use of an oral composition comprising:

an effective amount of a β (1-3) β (1-4) glucan, and

an effective amount of one, or more than one of an antibacterial agent, a botanical extract, and a flavouring agent,

for imparting fresh breath to a subject over a prolonged period of time.

29. A use of an oral composition comprising:

an effective amount of a β (1-3) β (1-4) glucan, and

an effective amount of a flavouring agent,

for continuously providing the flavouring agent within the oral cavity of a subject.

30. A use of an oral composition comprising:

an effective amount of a β (1-3) β (1-4) glucan, and

an effective amount of an antibacterial agent,

for continuously providing the antibacterial agent within the oral cavity of a subject.

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